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ABSTRACT

This booklet, one of a series of 17 developed at Prince George's Community College, Largo, Maryland, provides an individualized, self-paced undergraduate organic chemistry instruction module designed to augment any course in organic chemistry but particularly those taught using the text "Organic Chemistry" by Morrison and Boyd. The entire series of modules covers the first 13 chapters of the Morrison-Boyd text in great detail. Each module has been provided with from one to three audiotapes, available from Prince George's Community College, to provide students additional explanations of particular concepts. Each module includes a self-evaluation exercise, a reference guide, worksheets to be completed with the audiotapes, answer sheets for the worksheets, a progress evaluation, an answer sheet for the progress evaluation, an answer sheet for the self-evaluation exercise, an introduction to the topic covered by the module, and student performance objectives for the module. The topic of this module is alkanes. (SL)

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ED 155584

ORGANIC CHEMISTRY

V. Zdravkovich

4

S elf

I nstructional

P ackage

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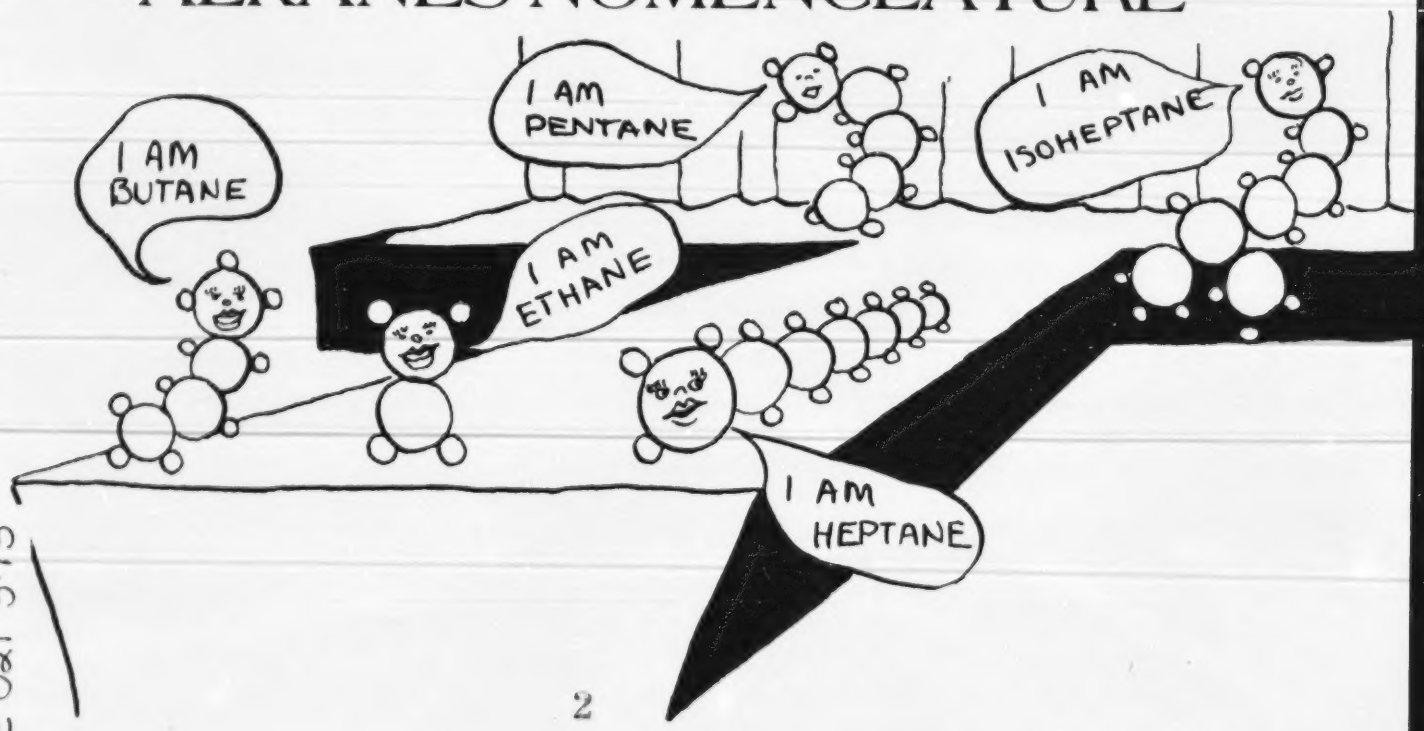
ALKANES-NOMENCLATURE



SE 021 575

Self Instructional Sequence in

ORGANIC CHEMISTRY

"Copr.," V. Zdravkovich 1976

ALKANES

Good morning, troublemaker -
I'm told they call you "Alkane".
Quite an impressive moniker,
Such a strange sounding name.

Actually, this is only your title,
Pretensions to grandeur, no less!
With aliases you've not been idle,
How do I keep track of this mess?!

Butane, pentane, hexane, heptane...
Won't you ever stop putting us on?
Your list of henchmen is legion
You're a species they can't seem to restrain
Methyl, ethyl, propyl, butyl...
As if you ground them out of a mill!

They say I'm to examine the textbook,
And listen to this marvelous tape,
And they've even come up with a system
Which holds out a small ray of hope.
The IUPAC nomenclature - designed to put you in your place.
I'll beat you at your own game you stinker -
I'll call you all-those-impossible-names right to your face!

---Author unknown

Self Instructional Package No. 4
Form A

ALKANES

NOMENCLATURE

Definitions

The student will be able to define or explain and illustrate with appropriate examples where applicable the following terms: PARENT CHAIN, BRANCH, ALKYL GROUP, METHYL GROUP, ETHYL GROUP, n-PROPYL GROUP, ISOPROPYL GROUP, n-BUTYL GROUP, SEC. BUTYL GROUP, ISOBUTYL GROUP, TERT, BUTYL GROUP.

Naming

The student will be able to assign the correct IUPAC name to any given alkane.

The student will be able to draw the structure that corresponds to the given IUPAC name.

Given an incorrect name, the student will be able to draw the structure and assign the correct IUPAC name to the compound.

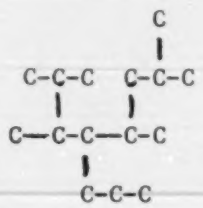
Self Instructional Package No. 4
Form B - Self-Evaluation Exercise

ALKANES

NOMENCLATURE

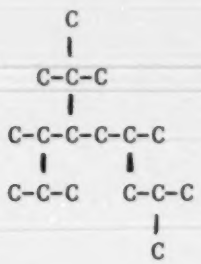
Fill out this exercice by blacking the appropriate answers.

1. The longest chain in the compound below is:



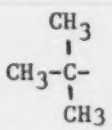
a) 5 b) 6 c) 7 d) 8

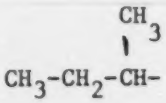
2. The compound below is a derivative of:

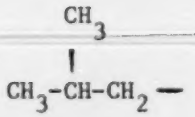


a) hexane b) heptane c) octane d) nonane

3. You are given four different alkyl groups below. Identify the isobutyl group.

a) 

c) 

b) 

d) $CH_3-CH_2-CH_2-CH_2-$

4. From the given alkyl groups select the secondary butyl group.

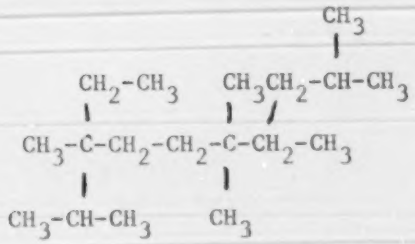
   a) $CH_3\ CH(CH_3)\ CH_2$

   b) $CH_3\ CH_2\ CH(CH_3)$

   c) $C(CH_3)_3$

   d) $CH_3\ CH_2\ CH_2\ CH_2$

5. The correct IUPAC name for the compound with the structural formula drawn below is:



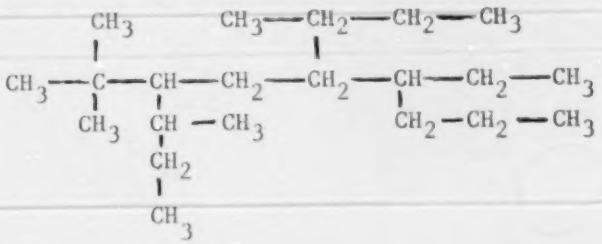
   a) 5.5-dimethyl-2-ethyl -2-isopropyl-6-isobutyl heptane

   b) 2,4,5,5-tetramethyl-8-ethyl-8-isopropyl nonane

   c) 2,3,6,6,7,9-hexamethyl-3-ethyl decane

   d) 2,4,5,5,8,9-hexamethyl-8-ethyl decane

6. The correct IUPAC name for the compound with the structural formula drawn below is:



   a) 3-methyl-7-n-propyl-6-sec. butyl-4-tert. butyl nonane

   b) 2,2-dimethyl-6-n-propyl-3,5-disec. butyl octane

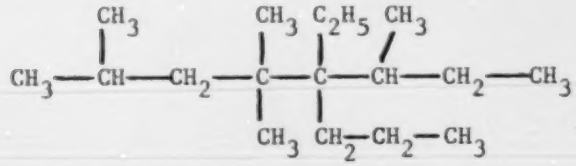
   c) 3-methyl-7-ethyl-4-tert. butyl-6-sec. butyl decane

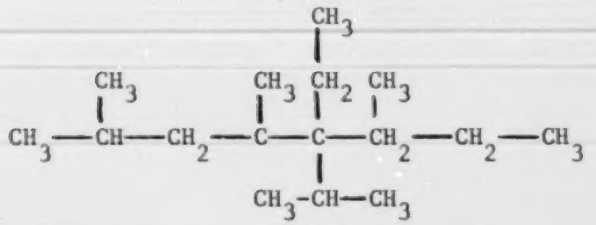
   d) 2,2-dimethyl-6-ethyl-3,5-disec. butyl nonane

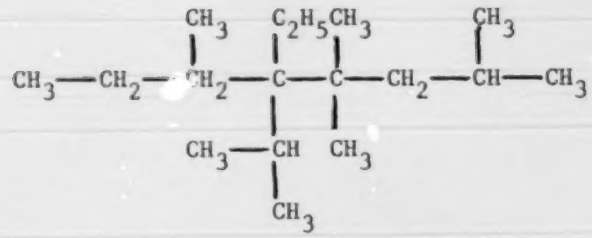
SIP No. 4
Form B - Self-Evaluation Exercise

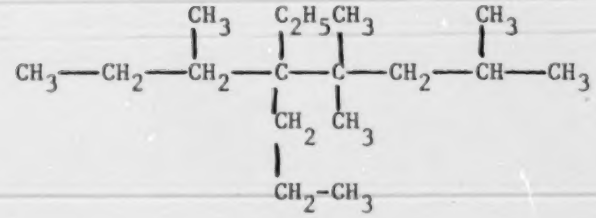
7. Identify the correct structural formula which corresponds to

2,4,4,6-tetramethyl-5-ethyl-5-isopropyl octane

a) 

b) 

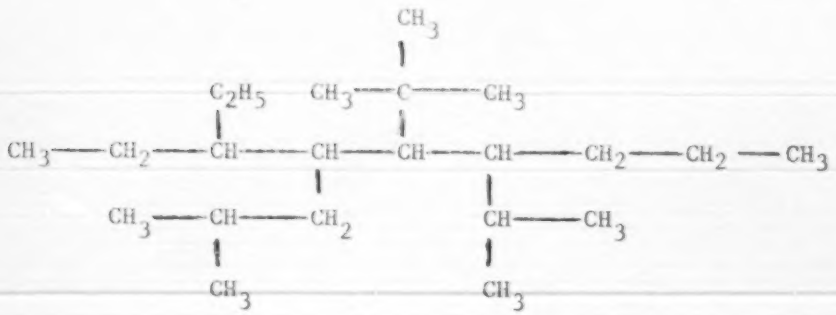
c) 

d) 

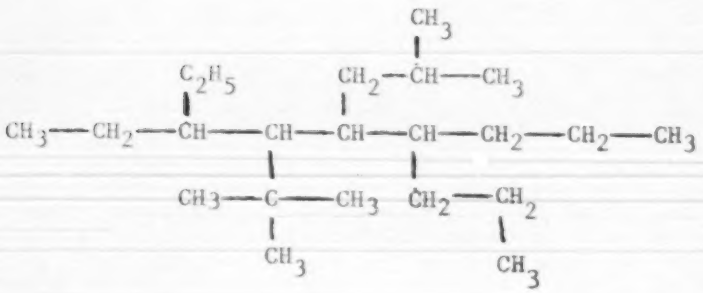
8. Identify the structural formula which corresponds to:

3-ethyl-6-isopropyl-4-tert. butyl-5-isobutyl nonane

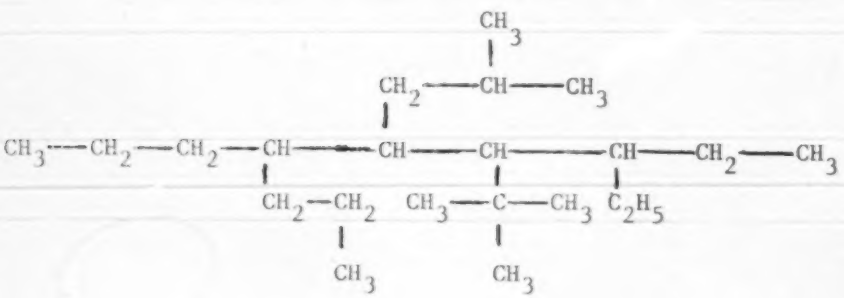
a)



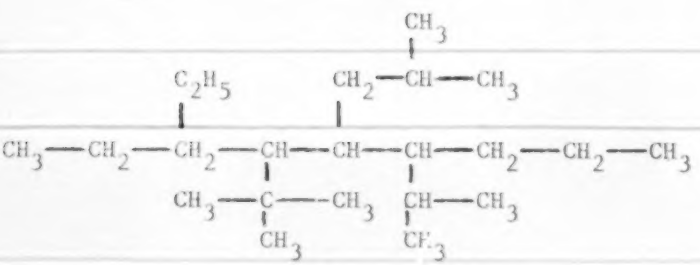
b)



c)



d)



9

9. The correct IUPAC name for the alkane below is:

$CH_3CH(CH_3)\ CH[CH(CH_3)_2]\ CH[CH_2CH(CH_3)_2]\ CH_2\ C(CH_3)_2\ CH_3$

a) 2,6,6-trimethyl-3-isobutyl-4-tert. butyl heptane

b) 2,2,6-trimethyl-5-isopropyl-4-tert. butyl heptane

c) 2,2,6-trimethyl-5-n-propyl-4-tert. butyl heptane

d) 2,2,6-trimethyl-5-isopropyl-4-isobutyl heptane

10. From the given INCORRECT IUPAC name for an alkane draw its structural formula. The correct name of this alkane is:

ethyl, propyl, isopropyl, sec. butyl methane

a) 2-methyl-3-ethyl-3-sec. butyl hexane

b) 3-methyl-4-ethyl-4-isopropyl heptane

c) 2.4-dimethyl-3-ethyl-3-n-propyl hexane

d) 3-methyl-4-ethyl-4-n-propyl hexane

Self Instructional Package No. 4
Form C - Reference Guide

ALKANES

NOMENCLATURE

The reference guide should be used in conjunction with Form B or the Self Evaluation Exercise. The references given are geared specifically toward the questions on Form B.

Question 1	Chapter 3	Sections 7, 10
Question 2	Chapter 3	Sections 7, 9
Questions 3, 4	Chapter 3	Section 8
Questions 5, 6, 7, 8, 9, 10	Chapter 3	Section 10

Morrison and Boyd Organic Chemistry

For Questions 1 through 10, additional explanation and examples can be found in Tape 1 - Alkanes - Nomenclature.

Self Instructional Package 4
Tape 1 - Worksheet cont.

OBJECTIVE: To learn the IUPAC nomenclature of ALKANES.

IUPAC RULES FOR THE NAMING OF ALKANES.

1. Select as the parent structure the longest chain, and then consider the compound to have been derived from this structure by the replacement of hydrogen by various alkyl groups.

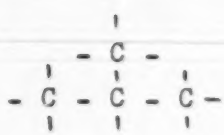
2. Where necessary, indicate by a number the carbon to which the alkyl group is attached.

3. In numbering the parent carbon chain, start at whichever end results in the use of the lowest numbers.

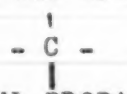
4. If the same alkyl group occurs more than once as a side chain, indicate this by the prefix di-, tri-, tetra-, etc., to show how many of these alkyl groups there are, and indicate by various numbers the positions of each group.

5. If there are several different alkyl groups attached to the parent chain, name them in order of increasing size or in alphabetical order.

Example 1.

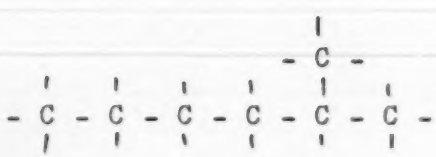


Longest chain: 3 - propane
Number of branches: 1
Identity of the branch: methyl group



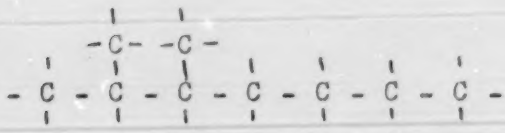
Name: METHYL PROPANE

Example 2.



Longest chain: 6 - hexane
Number of branches:
Identity of the branch:

Example 3.



1 2 3 4 5 6 7 CORRECT
7 6 5 4 3 2 1 INCORRECT

Longest chain: _____

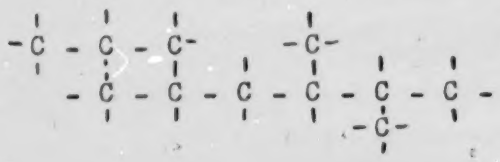
Number of branches: _____

Identity of branches: _____

Name: _____

ASSIGNMENT 1. a) Identify the longest carbon chain. b) Identify the branches. c) Assign the correct IUPAC names to the alkanes below.

I

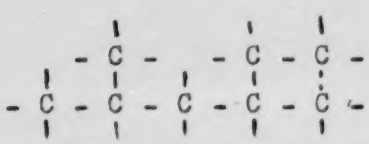


a) _____

b) _____

c) _____

II

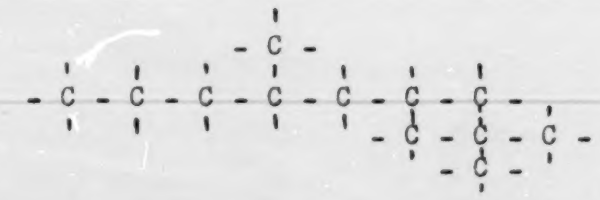


a) _____

b) _____

c) _____

ASSIGNMENT 1. continued

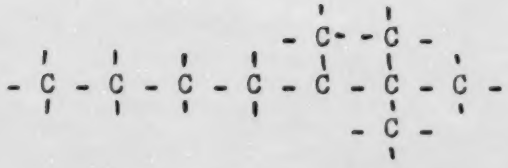
III 

a) _____

b) _____

c) _____

Example 4.



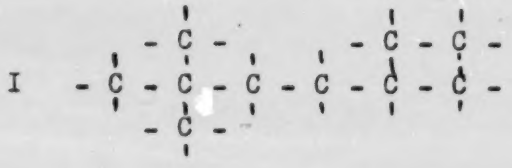
CORRECT NUMBERING Longest chain: _____

Number of branches: _____

Identity of branches: _____

IUPAC name: _____

ASSIGNMENT 2. Assign the correct IUPAC names to the following compounds:

I 

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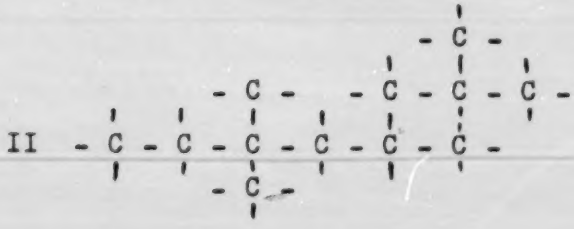
II 

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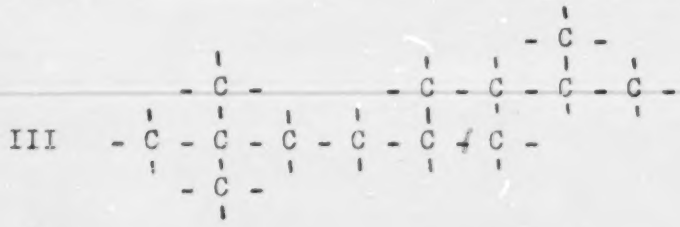
ASSIGNMENT 2. continued

III



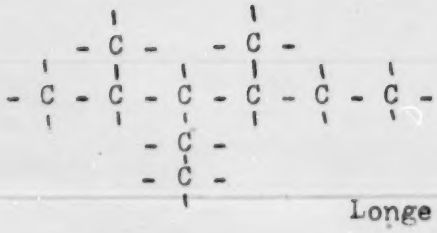
ASSIGNMENT 3. Draw the structural formulas of the following compounds:

I 2,2,3,4 - Tetramethyl Heptane

II 2,3,3,5,6 - Pentamethyl Nonane

III 2,2,3 - Trimethyl Butane

Example 5.



Longest chain: _____

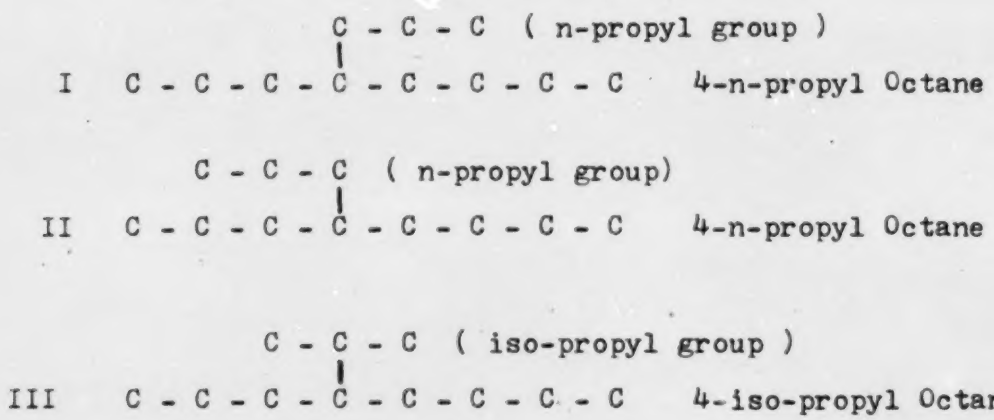
Number of branches: _____

Identity of branches: _____

IUPAC name: _____

CH_4	Methane	$-\overset{\vert}{\underset{\vert}{C}}-$ or	CH_3-	Methyl group
C_2H_6	Ethane	$-\overset{\vert}{\underset{\vert}{C}}-\overset{\vert}{\underset{\vert}{C}}-$ or	C_2H_5-	Ethyl group
C_nH_{2n+2}	Alkane		C_nH_{2n+1}	Alkyl group

Example 6. 4 - ? propyl Octane


C - C - C (n-propyl group)
I C - C - C - C - C - C - C - C - C 4-n-propyl Octane
C - C - C (n-propyl group)
II C - C - C - C - C - C - C - C 4-n-propyl Octane
C - C - C (iso-propyl group)
III C - C - C - C - C - C - C - C 4-iso-propyl Octane

ASSIGNMENT 4. Write the structural formulas or the following compounds:

I 2,2- Dimethyl - 3 - ethyl - 4 - iso-propyl Heptane

II 2,4,5- Trimethyl - 3,3 - diethyl Octane

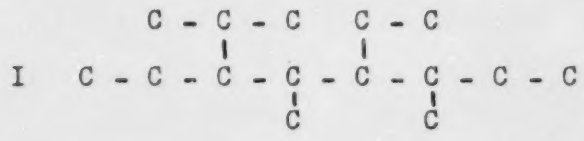
III 2,3,7,8- Tetramethyl - 3 - isopropyl - 4-n-propyl Nonane

ASSIGNMENT 4. continued

IV 4,4- Di-isopropyl Octane

ASSIGNMENT 5. Name the compounds for which the structural formulas are given below:

I



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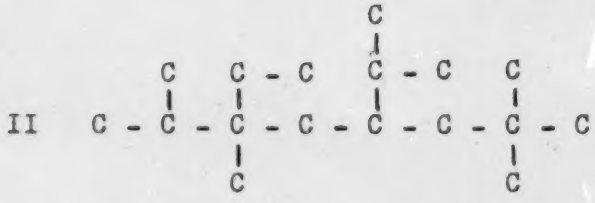
II



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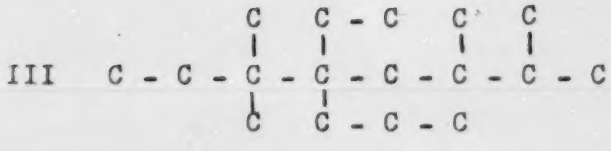
III

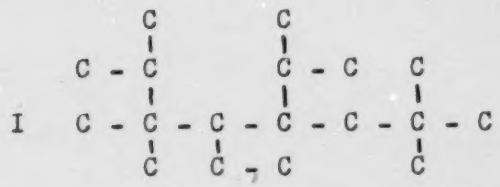


_____

ASSIGNMENT 6.

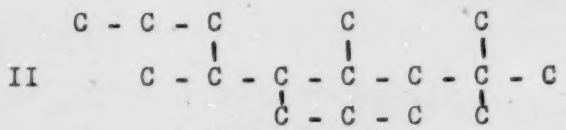
Forgetful Frieda has been given the task of assigning the correct IUPAC names to the alkanes below. In each case she has forgotten something. Examine the structural formulas and correct Frieda's incorrectly assigned IUPAC names.

I



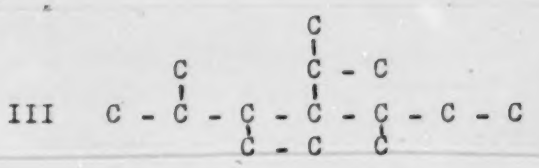
2,6,7- Pentamethyl - 5 - ethyl - 4 - propyl Octane

II



2,2,4- Trimethyl - 5,6 - di - n-propyl Heptane

III



2 - Methyl - 4 - isopropyl - 3 - ethyl Heptane

ASSIGNMENT 7.

Confused Clyde has completely failed the assignment given him by his instructor. He was given a structural formula and asked to supply the correct IUPAC name. Confused Clyde not only returned an incorrect answer, but he also managed to loose the original structural formula. It is now your task to draw the structural formula of the compound from the incorrect name which Clyde submitted and to supply the correct IUPAC name for it.

Name submitted by Confused Clyde was:

Methyl, ethyl, isopropyl Methane

Example 7.

n-Butane $\overset{1^o}{C} - \overset{2^o}{C} - \overset{2^o}{C} - \overset{1^o}{C}$

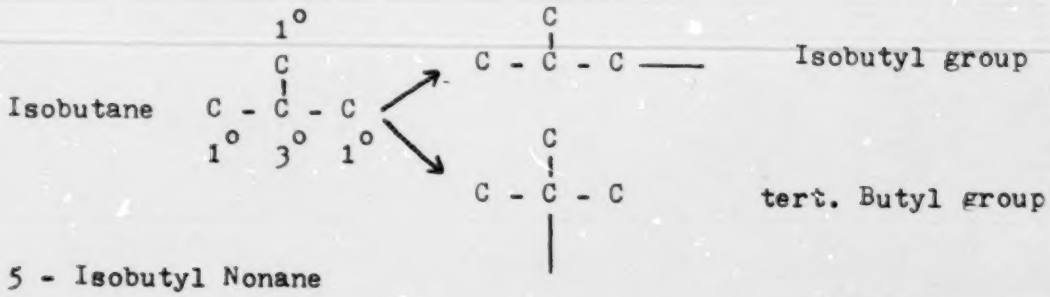
$C - C - C - C$ — n-Butyl group

$C - C - \underset{|}{C} - C$ sec. Butyl group

5 - n - Butyl Nonane:

5 - sec. Butyl Nonane:

Example 7. continued



5 - Isobutyl Nonane

5 - tert. Butyl Nonane

ALKYL GROUPS C_nH_{2n+1}

Methyl group CH_3-

Ethyl group CH_3-CH_2-

n - Propyl group $CH_3-CH_2-CH_2-$

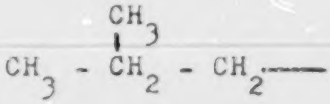
Isopropyl group $CH_3-\underset{|}{CH}-CH_3$ or $CH_3-\overset{CH_3}{\overset{|}{C}}-$

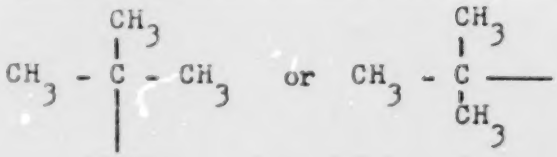
n - Butyl group $CH_3-CH_2-CH_2-CH_2-$

sec. Butyl group $CH_3-CH_2-\underset{|}{CH}-CH_3$ or

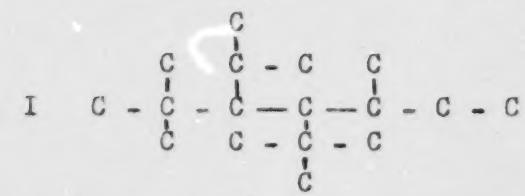
$CH_3-CH_2-\underset{\underset{CH_3}{|}}{CH}-$

ALKYL GROUPS C_nH_{2n+1} continued

Isobutyl group 

tert. Butyl group 

ASSIGNMENT 8. Assign the correct IUPAC names to the four compounds listed below.

I 

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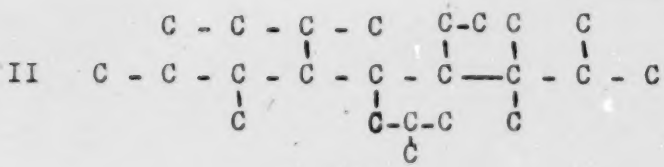
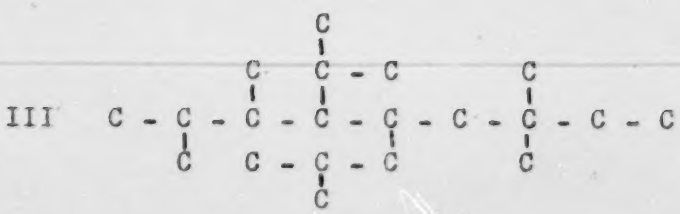
II 

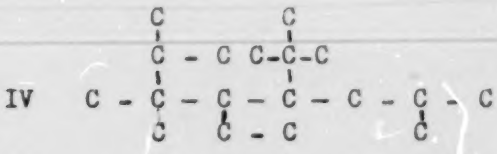
_____

III 

_____

ASSIGNMENT 8. continued

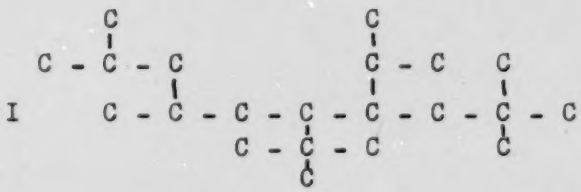
IV



ASSIGNMENT 9.

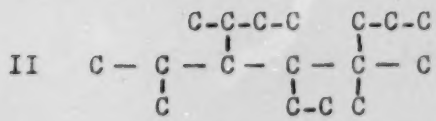
Inert Irma has been given the task of assigning the IUPAC names to a number of alkanes. She has done this only partially correctly. She has actually made a few mistakes. You are now expected to assume the role of a teacher and mark her answers as right or wrong. In addition to this, whenever an answer is incorrect, show the correction.

I



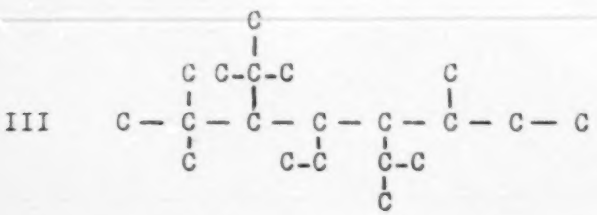
2,2 - Dimethyl - 4 - isopropyl - 5 - tert. butyl - 7 - iso-butyl Octane

II



2,5 - Dimethyl - 3 - ethyl - 2 - n-propyl - 4 - sec. butyl Hexane

ASSIGNMENT 9. continued

III 

2,2,6 - Trimethyl - 5 - isopropyl - 3 - tert. butyl Octane

ASSIGNMENT 10. From the given IUPAC names write the structural formulas of the alkanes below.

I 2,4 - Dimethyl - 5 - ethyl - 3 - isopropyl - 4 - tert. butyl Heptane

II 2,6 - Dimethyl - 3 - ethyl - 4 - isobutyl - 5 - tert. butyl Octane

III 2,3,6 - Trimethyl - 5 - isopropyl - 4 - sec. butyl Nonane

ASSIGNMENT 11.

Saturated Sam has completed an assignment given him, and has submitted IUPAC names for three alkanes. These names, however, are incorrect. Using these incorrect IUPAC names:
a) draw the correct structural formulas
b) assign the correct IUPAC names.

I Isobutyl, isopropyl, ethyl, methane

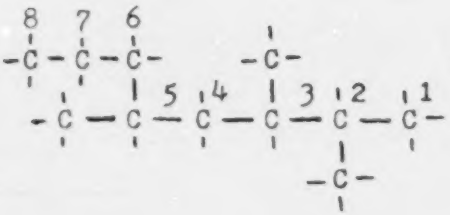
II 2 - n - propyl - 3 - sec. butyl - 4 - isobutyl Pentane

III 2 - tert. butyl - 3 - isopropyl - 4 - sec. butyl Hexane

Self Instructional Package 4
Tape 1 - Answer Sheet

ALKANES

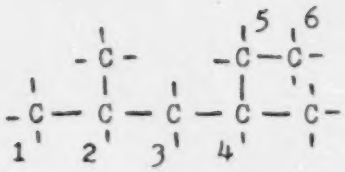
ASSIGNMENT 1. a) Identify the longest carbon chain. b) Identify the branches. c) Assign the correct IUPAC names to the alkanes below:

I 

a) Octane

b) Three methyl groups

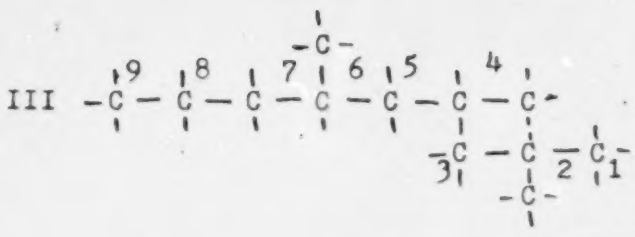
c) 2,3,5-Trimethyl Octane

II 

a) Hexane

b) Two methyl groups

c) 2,4-Dimethyl Hexane

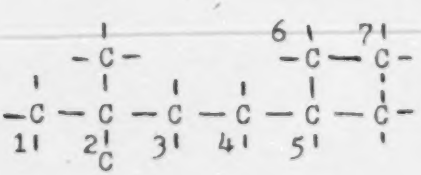
III 

a) Nonane

b) Three methyl groups

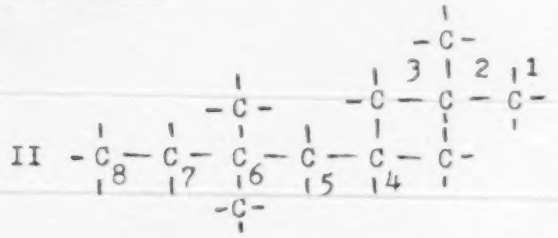
c) 2,4,6-Trimethyl Nonane

ASSIGNMENT 2. Assign the correct IUPAC names to the following compounds:

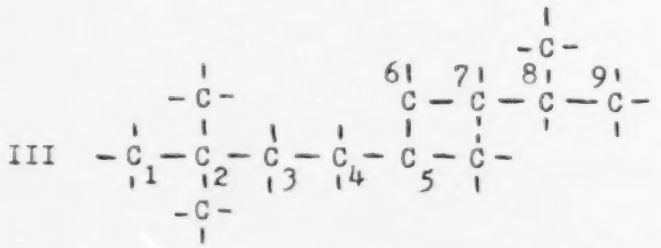
I 

2,2,5 - Trimethyl Heptane

ASSIGNMENT 2. continued

II 

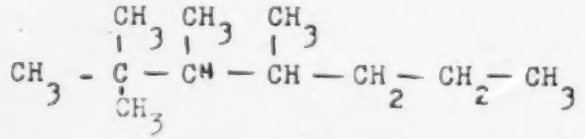
2,4,6,6 - Tetramethyl Octane

III 

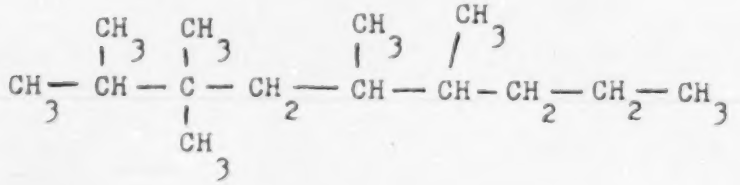
2,2,5,8 - Tetramethyl Nonane

ASSIGNMENT 3. Draw the structural formulas of the following compounds:

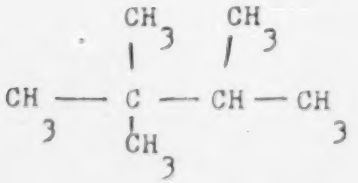
I 2,2,3,4 - Tetramethyl Heptane



II 2,3,3,5,6 - Pentamethyl Nonane

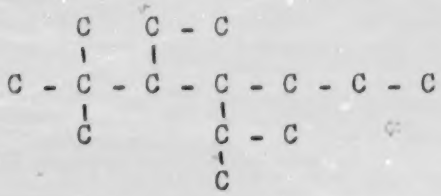


III 2,2,3 - Trimethyl Butane

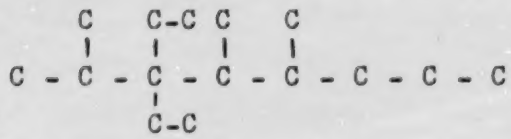


ASSIGNMENT 4. Write the structural formulas of the following compounds:

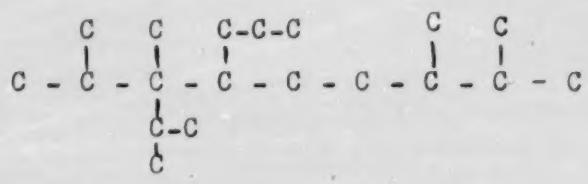
I 2,2 - Dimethyl - 3 - ethyl - 4 - isopropyl Heptane



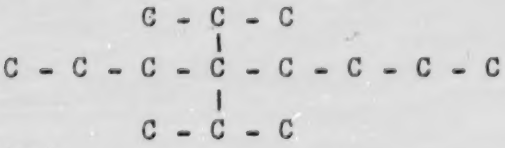
II 2,4,5 - Trimethyl - 3,3 - diethyl Octane



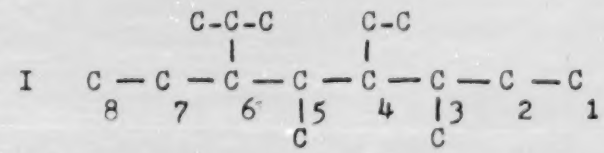
III 2,3,7,8 - Tetramethyl - 3 - isopropyl - 4 - n-propyl Nonane



IV 4,4 - Di-isopropyl Octane

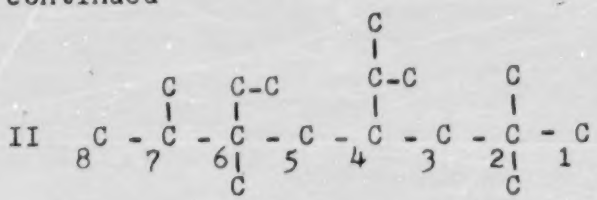


ASSIGNMENT 5. Name the compound for which the structural formulas are given below:

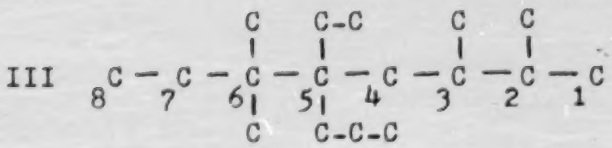


3,5-Dimethyl - 4 - ethyl - 6 - isopropyl Octane

ASSIGNMENT 5. continued

II 

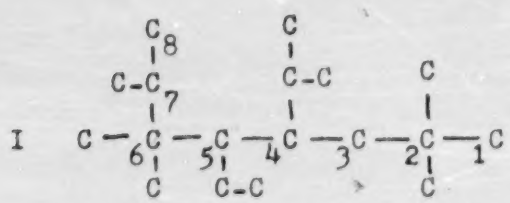
2,2,6,7- Tetramethyl - 6 - ethyl - 4 - isopropyl Octane

III 

2,3,6,6- Tetramethyl - 5 - ethyl - 5 - n-propyl Octane

ASSIGNMENT 6.

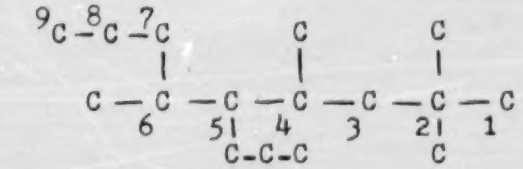
Forgetful Frieda has been given the task of assigning the correct IUPAC names to the alkanes below. In each case she has forgotten something. Examine the structural formulas and correct Frieda's incorrectly assigned IUPAC names.

I 

2,2,6,6,7- Pentamethyl - 5 - ethyl - 4 - isopropyl Octane

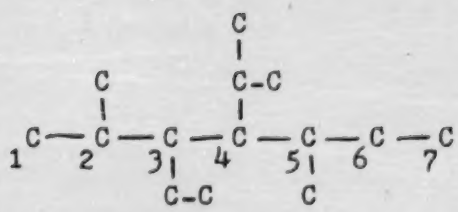
ASSIGNMENT 6. continued

II



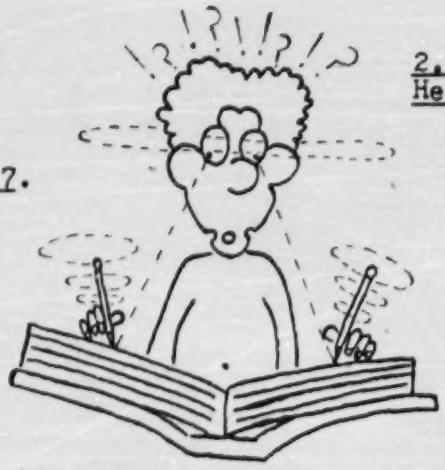
2,2,4,6- Tetramethyl - 5 - n-propyl Nonane

III



2,5- Dimethyl - 3 - ethyl - 4 - isopropyl Heptane

ASSIGNMENT 7.



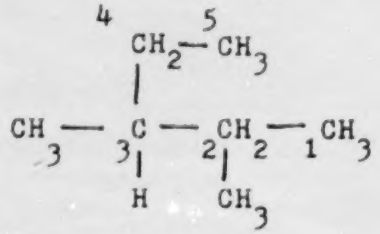
Confused Clyde has completely failed the assignment given him by his instructor. He was given a structural formula and asked to supply the correct IUPAC name. Confused Clyde not only returned an incorrect answer, but he also managed to loose the original structural formula. It is now your task to draw the structural formula of the compound from the incorrect name which Clyde submitted, and to supply the CORRECT IUPAC name for it.

Name submitted by Confused Clyde was:

Methyl, ethyl, isopropyl Methane

ASSIGNMENT 7. continued

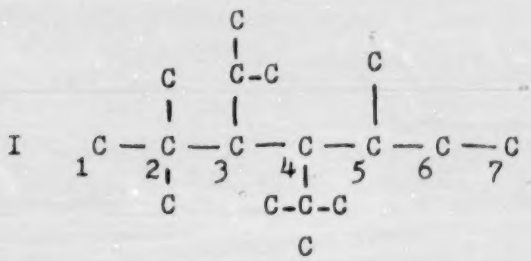
STRUCTURE:



CORRECT IUPAC NAME: 2,3- Dimethyl Pentane

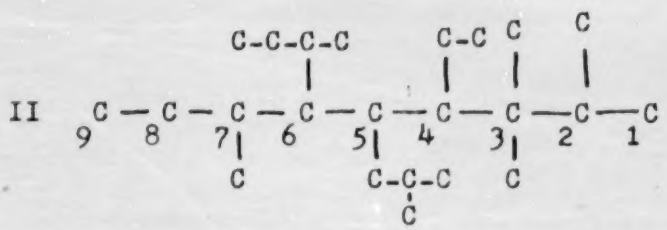
ASSIGNMENT 8. Assign the correct IUPAC names to the four compounds listed below:

I



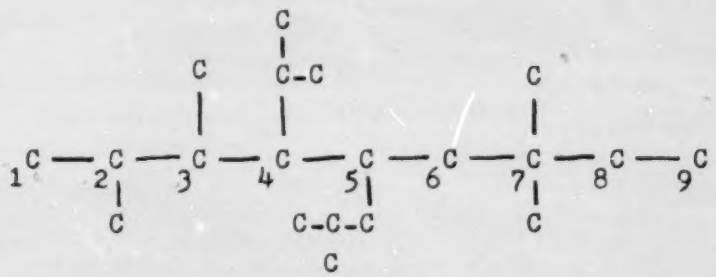
2,2,5- Trimethyl - 3 - isopropyl - 4 - tert. butyl Heptane

II

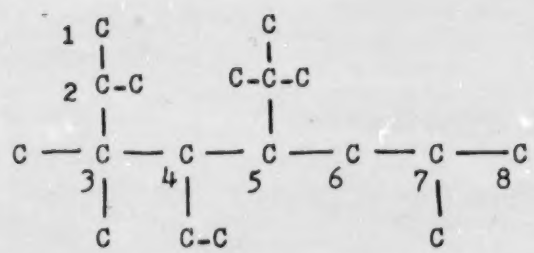


2,3,7- Trimethyl - 4 - ethyl - 5 - iso-butyl - 6 - sec. butyl Nonane

ASSIGNMENT 8. continued

III 

2,3,7,7- Tetramethyl - 4 isopropyl - 5 - isobutyl Nonane

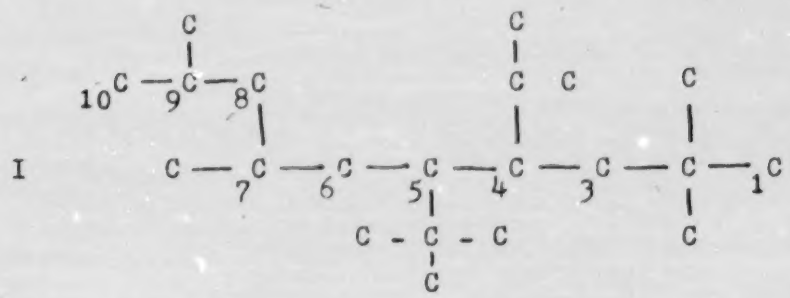
IV 

2,3,7- Trimethyl - 4 - ethyl - 5 - tert. butyl Octane

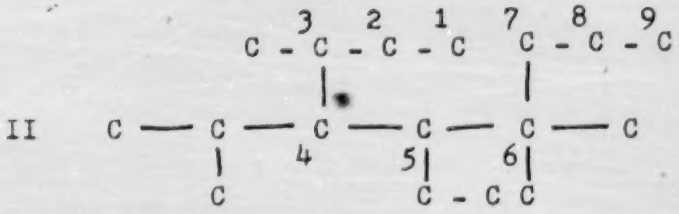
ASSIGNMENT 9.

Inert Irma has been given the task of assigning the IUPAC names to a number of alkanes. She has done this only partially correctly. She has actually made a few mistakes. You are now expected to assume the role of a teacher and mark her answers as right and wrong. In addition to this, whenever an answer is incorrect, show the correction.

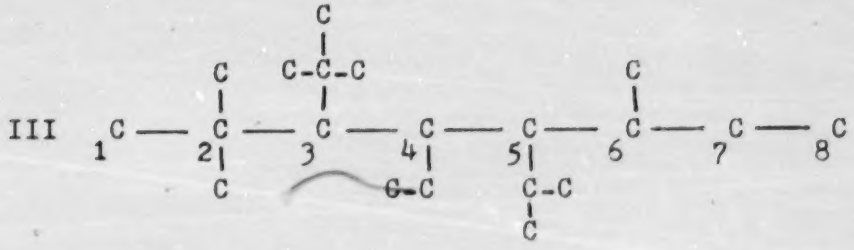
ASSIGNMENT 9. continued

I 

2,2,7,9- Tetramethyl - 4 - isopropyl - 5 - tert. butyl Decane

II 

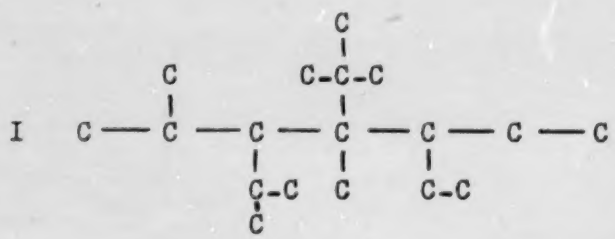
3,6,6- Trimethyl - 5 - ethyl - 4 - isopropyl Nonane

III 

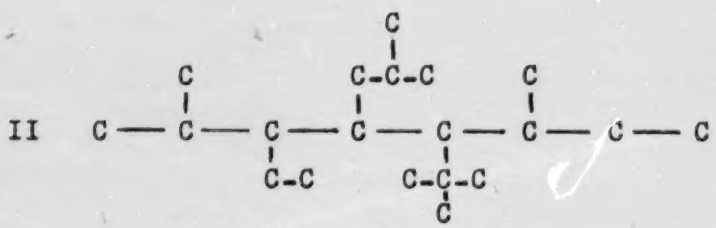
2,2,6- Trimethyl - 4 - ethyl - 5 - isopropyl - 3 - tert. butyl Octane

ASSIGNMENT 10. From the given IUPAC names, write the structural formulas of the alkanes below.

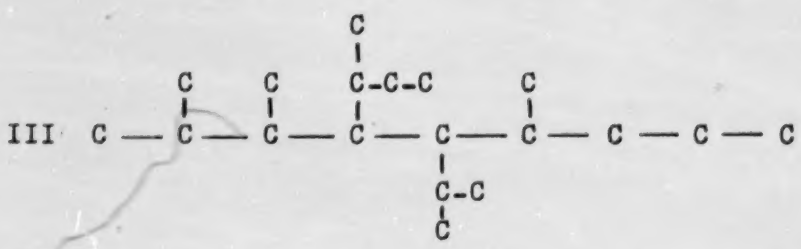
I



II



III

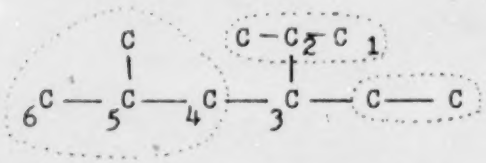


ASSIGNMENT 11.

Saturated Sam has completed an assignment given him and submitted IUPAC names for three alkanes. These names, however, are incorrect. Using these incorrect IUPAC names:

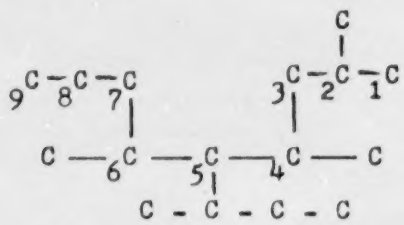
a) draw the correct structural formulas
b) assign the correct IUPAC names.

I Isobutyl, isopropyl, ethyl, methane (INCORRECT)



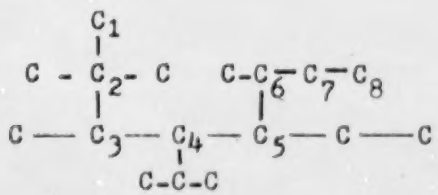
CORRECT IUPAC NAME: 2,5- Dimethyl - 3 - ethyl Hexane

II 2 - n-propyl - 3 - sec. butyl - 4 - isobutyl Pentane (INCORRECT)



CORRECT IUPAC NAME: 2,4,6- Trimethyl - 5 - sec. butyl Nonane

III 2- tert. butyl - 3 - isopropyl - 4 - sec. butyl Hexane (INCORRECT)



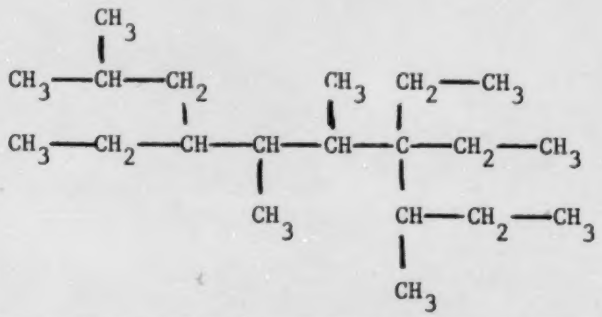
CORRECT IUPAC NAME: 2,2,3,6- Tetramethyl - 5 - ethyl - 4 - isopropyl Octane

Self Instructional Package No. 4
Form D - Progress Check Evaluation

ALKANES

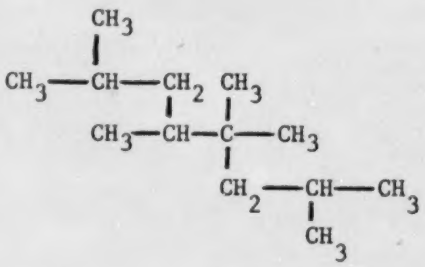
NOMENCLATURE

1. The parent chain in the compound below consists of how many carbon atoms?



a) 7 b) 8 c) 9 d) 10

2. The compound below can be considered a derivative of which alkane?



a) butane b) hexane c) heptane d) octane

3. Identify the isobutyl group as one of the groups listed.

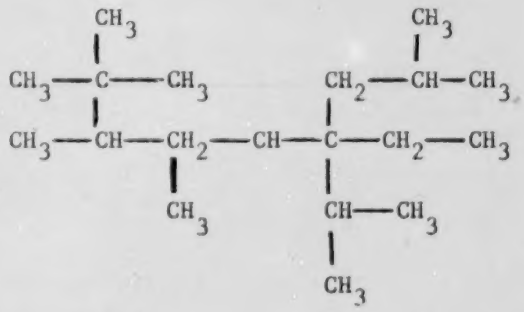
a) $(CH_3)_3C$

b) $CH_3\ CH(CH_3)\ CH_2$

c) $CH_3\ CH_2\ CH(CH_3)$

d) $CH_3\ CH_2\ CH_2\ CH_2$

4. Assign the correct IUPAC name to the alkane for which the structural formula is supplied.



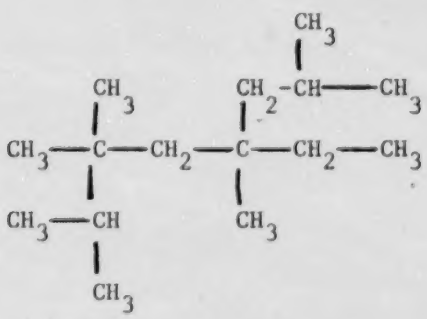
a) 3-methyl-5-isopropyl-2-tert. butyl-5-isobutyl heptane

b) 2,2,3,4-tetramethyl-6-isopropyl-6-isobutyl octane

c) 2,2,3,4,8-pentamethyl-6-ethyl-6-isopropyl nonane

d) 2,2,3,4,8-pentamethyl-6-ethyl-6-propyl nonane

5. Assign the correct IUPAC name to the alkane for which the structural formula is given below.



a) 2,3,3,5,7-pentamethyl-5-ethyl octane

b) 2,4,6-trimethyl-4-ethyl-2-isopropyl heptane

c) 2,4-dimethyl-2-isopropyl-4-isobutyl hexane

d) 2,3,3,5,7-pentamethyl-5-ethyl nonane

6. The correct IUPAC name which corresponds to the alkane below is:

$CH_3\ CH(CH_3)\ CH(CH_3)\ CH[C(CH_3)_3]\ CH(CH_2CH_3)CH(CH_2CH_3)CH_2CH_3$

a) 3,4-diethyl-6-isopropyl-5-tert. butyl heptane

b) 2,3-dimethyl-5,6-diethyl-4-tert. butyl octane

c) 6,7-dimethyl-2,3-diethyl-4-tert. butyl octane

d) 2,3-dimethyl-5,6-diethyl octane

7. The correct IUPAC name corresponding to the alkane below is:

$CH_3CH[CH_2CH(CH_3)_2]CH(CH_3)CH[CH(CH_3)_2]CH_2CH_2CH_3$

a) 2,4,5-trimethyl-6-isopropyl nonane

b) 2,2,4,5-tetramethyl-6-isopropyl octane

c) 2,4-dimethyl-5-isopropyl octane

d) 2,4,5-trimethyl-5-propyl nonane

8. The structural formula which corresponds to

2,3-dimethyl-6-ethyl-5-isopropyl-4-tert. butyl octane is:

a) $CH_3CH(CH_3)\ CH(CH_3)\ CH\ [C(CH_3)_3]\ CH\ [CH(CH_3)_2]\ CH_2\ CH_2\ CH_3$

b) $CH_3\ CH(CH_3)\ CH(CH_3)\ CH[C(CH_3)_3]\ CH[CH(CH_3)_2]\ CH(CH_2CH_3)_2$

c) $CH_3\ CH(CH_3)\ CH\ CH\ [C(CH_3)_3]\ CH\ [CH(CH_3)_2]\ CH(CH_2CH_3)_2$

d) $CH_3\ CH(CH_3)\ CH(CH_3)\ [C(CH_3)_3]\ CH[CH(CH_3)_2]\ CH(CH_2CH_3)_2$

9. From the <u>incorrect</u> IUPAC name for an alkane which is:

1-ethyl-1-isopropyl-2-isobutyl ethane, draw the structure and assign the correct IUPAC name. It is:

a) 2-methyl-5-isopropyl-heptane

b) 2,6-dimethyl heptane

c) 2,6-dimethyl-3-ethyl heptane

d) 2,6-dimethyl-5-ethyl heptane

10. From the incorrect IUPAC name for an alkane which is:

2-isobutyl-2-tert. butyl-3-n-butyl-3-sec. butyl butane

Draw the structure and assign the correct IUPAC name. It is:

a) 2,4,5-trimethyl-3-tert. butyl-5-sec. butyl nonane

b) 2,2,3-trimethyl-3-isobutyl-4-sec. butyl octane

c) 2,2,3,5-tetramethyl-3-isobutyl-4-n-butyl heptane

d) 2,4,5,6-tetramethyl-4-tert. butyl-5-n-butyl nonane

Self Instructional Package No. 4
Form B1 - Answer Sheet

ALKANES

NOMENCLATURE

1. d
2. d
3. b
4. b
5. c, d
6. c
7. c
8. d
9. d
10. b

Self Instructional Package No. 4
Form D^1 - Answer Sheet

ALKANES

NOMENCLATURE

1. d
2. d
3. b
4. c
5. a
6. b
7. a
8. b
9. c
10. a

CHEM 201

S.I.P. #4 - ERRATA

FORM D - Question 10

a) 2,4,5-Trimethyl-4-tert. Butyl-5-Sec. Butyl Nonane

TAPE 1 - Answer Sheet

Assignment 8

Compound II - 2,3,3,7 - Tetramethyl-4-Ethyl-5-Isobutyl-6-Sec. Butyl Nonane

Compound IV - 2,3,3,7 - Tetramethyl-4-Ethyl-5-tert. Butyl Octane